RETRACTABLE KEYBOARD ILLUMINATION DEVICE

BACKGROUND

The invention relates generally to computer keyboards, and more particularly, to computer keyboards with illumination features.

As laptop computer systems have become more popular and more portable, computer users now operate their computers in many different locations. Many times the computer user may desire to operate their computer in an environment with insufficient lighting such as an airplane, bus, or dimly lit room. The lack of adequate lighting may hinder the user's view of the keys on the keyboard and may affect the user's ability to work efficiently. The user may attempt to remedy this problem by using lamps or other external lighting. However, external light sources necessitate more space and are frequently unavailable in the environment in which the user chooses to operate the computer. Thus, it would be beneficial to provide improved keyboard illumination.

SUMMARY

In one embodiment, the invention includes a laptop computer having a base unit with a keyboard. A retractable illumination device may be located on the base unit to illuminate the keyboard. The illumination device may be raised up from the base unit and retracted into the base unit. In another embodiment, the retractable illumination device may be located on the display unit to illuminate the keyboard.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** shows a laptop computer having a retractable illumination device in accordance with one embodiment of the invention.

FIG. **2** shows a side view of a laptop computer having a retractable illumination device in accordance with one embodiment of the invention.

FIG. **3** shows a laptop computer having an illumination device with a slideable cover in accordance with another embodiment of the invention.

FIG. **4** shows a laptop computer having an illumination mechanism with a slideable cover in accordance with yet another embodiment of the invention.

FIG. **5** shows a computer system having a retractable illumination device in accordance with another embodiment of the invention.

DETAILED DESCRIPTION

Referring to FIG. **1**, an illustrative laptop computer **100** may include a base unit **102** having a processor, system memory, and a long term storage device (e.g., magnetic or optical disk units). The laptop computer **100** may also include a display **104** and a keyboard **106**. The keyboard **106** allows user input to the laptop computer **100** and may reside on the top surface of the base unit **102**. Additionally, the base unit **102** may include function keys **107** which may be located to the right or left of the keyboard **106**. The laptop computer **100** may also include a retractable illumination device **108** to illuminate the keyboard **106** and enable the operation of the laptop computer **100** in a dimly lit environment. The illumination device **108** may be any conventional type of illumination device such as an incandescent light or a light emitting diode (LED). In another embodiment, the illumination device **108** may be a grain of wheat LED to provide greater luminous intensity. Also, the illumination device **108** may be located at the back and center of the base unit **102**. Alternatively, the illumination device **108** may be located on either side of the keyboard **106** on the base unit **102**. A second retractable illumination device may be included to further illuminate the keyboard. In another embodiment, an illumination device **108** may be located on an outer surface of the display **104** and may be positioned to illuminate the keyboard **106**.

As shown in FIG. **2**, the illumination device **108** may be a pop-up device. In an active or extended state, device **108** may be raised above the surface of the base unit **102** to illuminate the keyboard **106**. In an inactive or retracted state, device **108** may be recessed into the base unit **102**. In one embodiment, the illumination device **108** may be popped up by pressing on the top of the device **108**. The act of popping up the illumination device **108** may also activate the device **108** to illuminate the keyboard **106**. The acts of raising and retracting the illumination device **108** may be controlled by any appropriate type of mechanism such as a spring loaded device. In another embodiment, an electronic device may be employed to control the raising and retracting movements of the device **108**. Additionally, the illumination device **108** may include a cover or a lens to diffuse and/or direct the light to provide better illumination of the keyboard **104**. Also, power for the illumination device **108** may be supplied by the same source that provides power for the base unit **102**.

Referring to FIG. **3**, in accordance with another embodiment of the invention, an illumination device **300** may be incorporated into the display unit **302**. The illumination device **300** may be a pop-up device as described above, or it may be permanently fixed to an outer surface of the display unit **302**. Additionally, the illumination device **300** may include a slideable cover **304**. To expose and activate the illumination device **300**, the slideable cover **304** may be slid back allowing the device **300** to illuminate a keyboard **306** and function keys **308**. When illumination is not necessary, the siideable cover **304** may be slid over the illumination device **300** to substantially cover and deactivate the device **300**.

In accordance with yet another embodiment shown in FIG. **4**, a display unit **400** may include a liquid crystal display **402** and a light source (not shown) to illuminate the display. The light source may be a conventional backlight for laptop computers and may include one or more light elements to illuminate the liquid crystal display **402**. The display unit **400** may also include an illumination mechanism **404** that utilizes light emitted by the light source to illuminate a keyboard **406** and function keys **408**. In this embodiment, light pipes or other light conducting elements may be used to direct a portion of the light generated by the light source to the illumination mechanism **404**. The illumination mechanism may employ a lens to focus the light on the keyboard **406** and function keys **408**. The illumination mechanism may be selectively activated and deactivated by a switch. Alternatively, a slideable cover may be included to deactivate the illumination mechanism **404** by substantially covering the mechanism **404**.

In accordance with still another embodiment of the invention, a retractable illumination device may be used in a computer workstation. Referring to FIG. **5**, an illustrative computer system **500** in accordance with one embodiment of the invention may include a desk or floor unit **502** having a microprocessor, system memory, and a long term storage device (e.g., magnetic or optical disk units). The computer system **500** may also include a monitor **504** to display output